PROGRAM FOR ARTERIAL SYSTEM SYNCHRONIZATION (PASS) FY12/13 CYCLE

Grand Ave ▪ Traffic Signal Timing Project

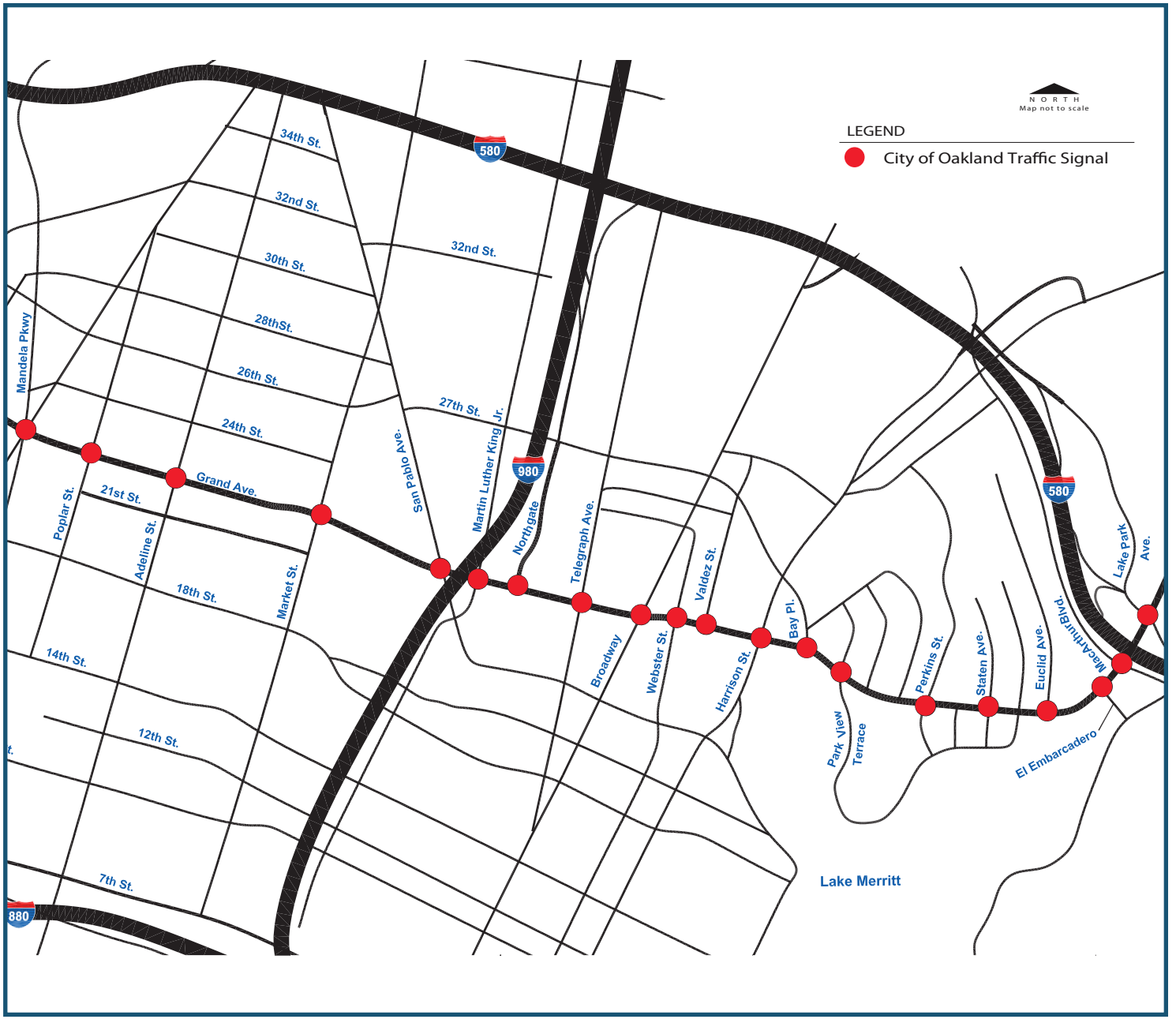
City of Oakland | Metropolitan Transportation Commission

PROJECT OVERVIEW

The City of Oakland received a Program for Arterial System Synchronization (PASS) grant from the Metropolitan Transportation Commission to optimize signal timing for 20 signals along Grand Ave. The project conducted timing analysis and developed and implemented signal coordination for the AM, midday, and PM peak periods.

The goal of this project was to facilitate traffic progression along Grand Ave; and to optimize signal timing plans to achieve operational efficiency of the traffic signals.

This corridor serves as a vital link for regional transit services for AC Transit. This PASS project involved the completion of the following major tasks: Collecting traffic volumes and turning movement counts, including bike and pedestrian counts, at all project intersections; Analyzing this traffic data including collision data to develop optimized signal timing plans; Implementing and fine-tuning the plans in the field; and Conductinig travel time surveys to analyze the performance of the new timing plans.



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Benefits to Various Modes

Benefits to Bicyclists: For improved safety, the minimum green intervals were reviewed for bicyclists on the corridor.

Benefits to Pedestrians: For improved safety, the Walk timing and Flash Don't Walk clearance timing parameters were updated to provide adequate time for children and seniors to safely cross the intersections and to accommodate the 2012 CA MUTCD requirement of walking speed of 3.5 feet/second.

Benefits to Transit: To assess the impacts on transit, travel time runs on transit vehicles were conducted both before and after the new timings were implemented. These evaluation results, as shown in the table to the right, demonstrate that the project provides significant benefits to transit.

Benefits to Traffic Safety: To enhance traffic safety, the yellow clearance timing parameters were updated based on current standards. All-red clearance timing parameters were reviewed to be consistent with the city's practices. The performance results show that signal delay and number of stops have reduced significantly, which helps in lowering greenhouse gas emissions, and possibly some secondary and rear-end collisions.

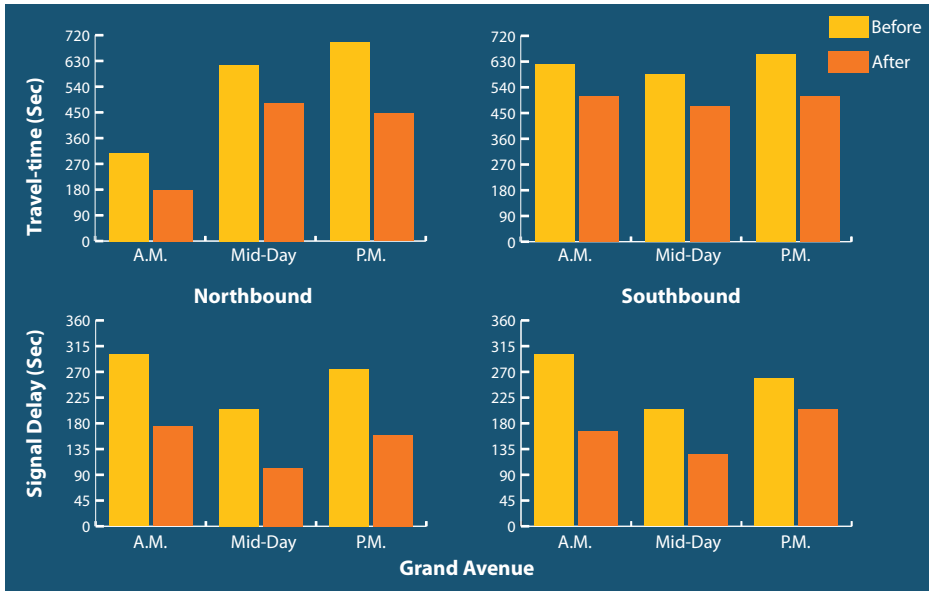
Project Costs	
Consultant Costs (basic Services/Plans, Transit Evaluation)	$55,615
Other Project Costs	$0
Agency Staff Costs (Estimate)	$1,154
Total Costs	**$56,769**

Project Benefits

Measures	*Annual Average*		*Lifetime (5 Years)*	
	Savings	*Monetized Savings*	*Savings*	*Monetized Savings*
Travel Time Savings	16,568 hrs.	$316,236	82,838 hrs.	$1,581,181
Fuel Consumption Savings	60,408 gal.	$242,766	302,042 gal.	$1,213,829
ROG Emissions Reduction	0.53 tons	$664	2.64 tons	$3,318
NOx Emissions Reduction	0.7 tons	$12,649	3.51 tons	$63,247
PM10 Emissions Reduction	0.09 tons	$13,692	0.47 tons	$68,458
CO Emissions Reduction	2.57 tons	$198	12.83 tons	$992
		Total Lifetime Benefits		**$2,931,024**
Transit Travel Time Savings	1,322 hrs.	$25,227	6,608 hrs.	$126,137
		Total Lifetime Benefits with Transit		**$3,057,161**

Overall Project Benefits	***Auto***	***Transit***
Average Decrease in Travel Time	**23%**	**12%**
Average Speed Increase	**30%**	**15%**
Average Fuel Savings	**18%**	N/A
Average Reduction in Signal Delay	**41%**	N/A
Average Reduction in Number of Stops	**25%**	N/A

Overall Benefit-Cost Ratio **59:1**



Project Benefits Summary

Average Reduction in Auto Signal Delay: 41%

Average Reduction in Number of Stops: 25%

Auto Fuel Consumption Savings: 18% or 302,042 gallons

Total Emissions Reduced (ROG, Nox, PM10, CO): 19.45 tons

Auto Travel Time Savings: 23% or 82,838 hours

Average Travel Time Savings: 12% or 6,608 hours

Overall Project Benefit-cost Ratio = 59:1

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